

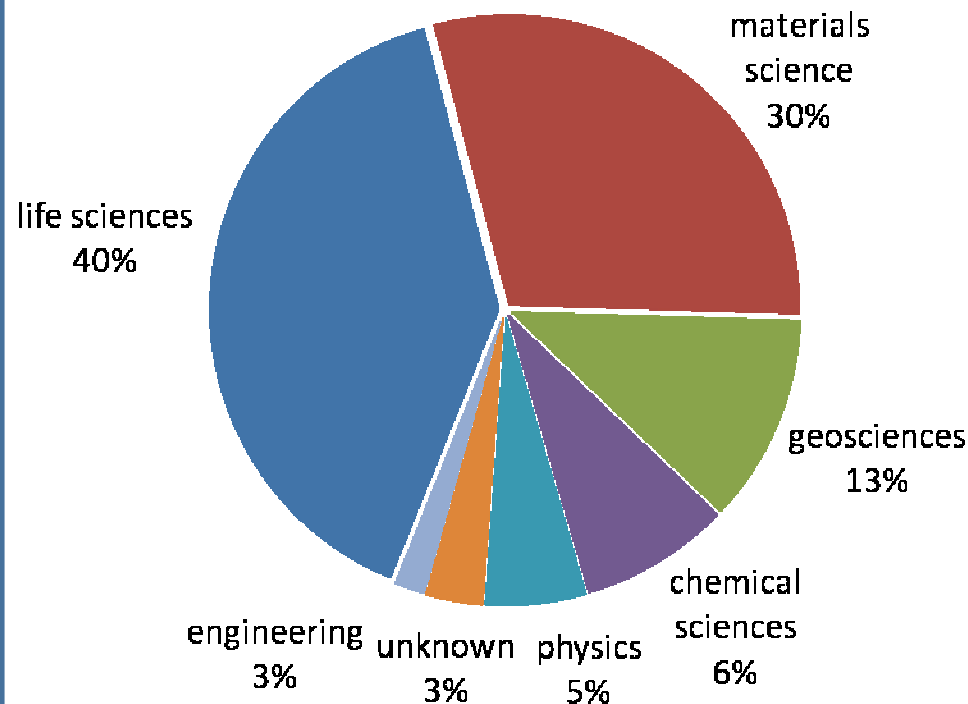
# SCIENTIFIC STRATEGIC PLANNING

## Life & Environmental Sciences Update

Lisa Miller  
BNL-NSLS

# Life & Environmental Sciences @ NSLS

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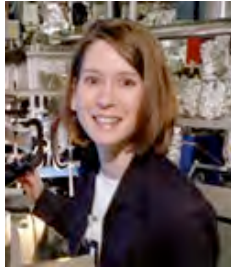


- Life Sciences (40%)
  - Structural biology (35%)
  - Bioimaging (5%)
- Environmental and Geo Sciences (13%)
- Soft Materials and Biophysics (~5%)

# Staff

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## Scientists



Lisa Miller  
U2B, U10B, X27A



Marc Allaire  
X6A, X25



Elaine DiMasi  
X6B



Vivian Stojanoff  
X6A



Lin Yang  
X21, X9

## Science Associates

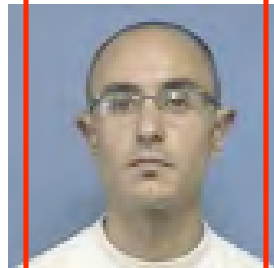


Randy Smith  
U2B, U10B, X27A

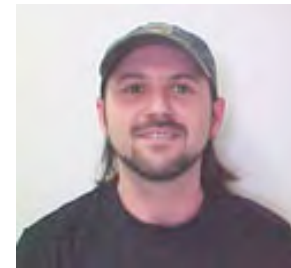


Qun Kian  
X6A

## Postdocs



Jean Jakoncic  
X6A



Ryan Tappero  
X27A

- 9 staff members run 7 beamlines
- X6A has 4 staff members - all funded by X6A-NIGMS program

# PRT Consortia

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## Protein Crystallography Research Resource (PXRR): NIH-NCRR, DOE-BER

- PI: Bob Sweet, BNL-Biology
- Beamlines: X8C, X12B, X12C, X25, X26C, X29 (all MX)
- Renewed 2008 (5 yrs)

## NIGMS East Coast Structural Biology Facility: NIH-NIGMS

- Spokesperson: Vivian Stojanoff, BNL-NSLS
- Beamlines: X6A (MX)
- Yearly renewal

## New York Structural Biology Group (NYSBG): NIH-NIGMS-PSI

- Spokesperson: Wayne Hendrickson, Columbia University
- Beamlines: X4A (MX), X4C (MX)
- Multiple funding sources

## Case Center for Synchrotron Biosciences (CSB): NIH-NIBIB

- PI: Mark Chance, Case Western Reserve University
- Beamlines: X3A (MX), X3B (XAS), X28C (footprinting)
- Renewed 2008 (1 yr); under renewal currently

# Facility Beamline Contributing Users

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## Beamline X25: Protein Crystallography Research Resource (PXRR)

- CU spokesperson: Bob Sweet (BNL-Biology)
- Contribution: 2 FTEs for beamline support
- Receipt: 30% CU beamtime
- NIH P41 grant renewed in 2008 (5 years)

## Beamline X27A: Center for Environmental & Molecular Sciences (CEMS)

- CU spokespersons: Rich Reeder (SBU), Jeff Fitts (BNL-Enviro)
- Contribution: 13-element Ge detector system
- Receipt: 15% CU beamtime
- Funding completed in 2007 (SBU) and 2008 (BNL-Enviro)

## Beamline X27A: Geo-Soil-Enviro Consortium for Advanced Radiation Sources (GSE-CARS)

- CU spokesperson: Tony Lanzirotti (Univ. Chicago)
- Contribution: GU user support, scientific oversight
- Receipt: 15% CU beamtime
- BES-Geosciences refunded late 2008 (3 yrs); NASA instrumentation development 2008 (Bruker CCD donated to X27A)

# Existing Programs and Productivity

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Facility BL	Technique	Pubs (FY08)
X6A	MX	54
X25	MX	45
X6B	scattering	4
X9	scattering	new
U10B	$\mu$ FTIR	18
X13B	$\mu$ XRD	4
X15A	DEI	5
X27A	$\mu$ XRF	6

PRT BL	Technique	Institution	Pubs (FY08)
X3A	MX	CWRU	11
X4A, X4C	MX	NYSBC	33, 4
X8C, X12B, X12C,	MX	BNL-Bio (PXRR)	13, 21, 31, 8, 61
X3B	XAS	CWRU	13
X11A, X11B	XAS	NRL	11, 1
X15B	XAS	BNL-Enviro	5
U9B, U11	UV-CD	BNL-Bio	1, 4
X1A	STXM	SBU-Phys	18
X2B	$\mu$ CT	ExxonMobil	5
X26A	$\mu$ XRF	GSE-CARS	15
X27C	scattering	SBU-Chem	34
U2B	$\mu$ FTIR	CWRU	10

# Strategic Planning

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1. **Short-term plans for the growth and expansion of current NSLS programs**
  - For world-class science today
  - For the transition to NSLS-II
2. **Vision of the scientific program for NSLS-II**
  - What beamlines and facilities will be needed?
  - How will the impact on the user community during the transition be minimized?

# Short-Term Plans for Structural Biology

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- **WORKSHOP:** “The Cold Soft Truth: Cryosystems for Studying Soft Materials”
  - May 18, 2009
  - NSLS Users’ Meeting workshop
  - Organized by Chris Jacobsen, Qun Shen, Lisa Miller
- **WORKSHOP:** “MX Frontiers at the One Micron Scale”
  - July 23-24, 2009
  - NSLS-II “new opportunities” workshop
  - Organized by Dieter Schneider, Marc Allaire, Lonny Berman
- Possibility of construction of new undulator MX beamline at X5: funding would need to be identified



# Short-Term Plans for X6A

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- X6A user access to insertion device beamline X25 (Allaire)
  - X25 is also a facility beamline; timeshare is beneficial for NIGMS Resource
- Synergy with new high-throughput SAXS program (Yang, Allaire)
  - ID beamline X9 comes will be available for SAXS/WAXS in summer 2009
  - We will initiate a coordinate effort to give X6A users opportunity to run solution-state structure techniques
  - SAXS postdoc to be hired for full-time effort (NSLS funds)

# Transition to NSLS-II

## PROPOSED BEAMLINES FROM STRATEGIC PLANNING WORKSHOP (January 2008)

Number	Technique	Source	new or transitioned?	NSLS location	% life sciences	shared with...
1	MX	undulator	new (LOI, Mar08)		100%	
2	MX	undulator	new (LOI, Mar08)		100%	
3	MX	3PW	transitioned	X4A/X6A	100%	
4	MX	3PW	transitioned	X25	100%	
5	MX	3PW	transitioned	X29	100%	
6	MX	undulator	new		100%	
7	MX	undulator	new		100%	
8	MX	undulator	new		100%	
9	MX	undulator	new		100%	
10	SAXS/WAXS	undulator	transitioned	X9	50%	soft materials
11	SAXS/WAXS	3PW	new		100%	
12	SAXS/WAXS	3PW	new		50%	soft materials
13	XAS	3PW	transitioned	X13B/X26	100%	
14	XAS	3PW	transitioned	C	50%	enviro
15	XAS	3PW	transitioned	X15B	25%	enviro
16	XAS	3PW	new		50%	enviro
17	x-ray footprinting	DW	transitioned	X28C	100%	
18	CD	bend	transitioned	U11	75%	materials

- No NSLS-II “project” beamlines for MX, XAS, or solution scattering
- Need to pursue funding for these insertion device beamlines
- Unclear whether 3PW transitioned beamlines will be worthwhile

# Transition of X6A to NSLS-II

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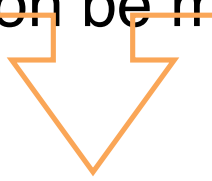
- As a facility beamline, we plan to transition X6A to NSLS-II

- Endstation equipment will be kept state-of-the-art

- Questions to be answered:

- Will the beamline move to a 3PW?

- Will endstation be moved to a new ID?

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- MX user community only wants ID beamlines at NSLS-II
  - Transition of X6A to ID beamline will require additional, non-LS funding
  - Identifying funding for X6A program transition is top priority

# Transition to NSLS-II for Life Sciences

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- February 2, 2009: Wayne Hendrickson was appointed Associate Project Director for Life Sciences at NSLS-II (20%)
- February 19, 2009: meeting with NIH program managers (NIGMS, NCRR, NCI)
  - NIH endorses the Life Sciences Village concept and encouraged NSLS-II to pursue this direction
  - Construction of LOBs could benefit from Stimulus funding
  - Scientific strategic planning for beamlines will involve coordination of NIH priorities / funding opportunities with the LOI/BAT process